

CLAIMS

- 1) Adaptive or variable phy mode transmission system with automatic control of the transmitted power, including at least one station called 'master', and one or several peripheral stations, also called 'slaves', in which some stations are able to play both said master role and said peripheral role as well, said peripheral stations being equipped with proper means in order to regulate the transmitted power when a signaling message is received from the master station on a communication channel, also called 'downstream channel', characterized in that said master station includes means adapted to generate said signaling messages, organized in order to control the power received by the master station, by effect of the transmission of peripheral stations, on the basis of a reference received power level, also called 'working point', predefined for each phy mode used by the peripheral station for the transmissions.
- 2) The system of claim 1 where said working point dependent on the phy mode is set by adding a margin, constant and independent from the phy mode, to the threshold level of the corresponding phy mode.
- 3) The system of claim 1 where said working point, dependent on the phy mode, is set by equalizing the performances in terms of bit error rate (BER) of each phy mode to a constant value, said constant value being independent on the used phy mode and being coincident with the required performance.
- 4) The system of claim 1 where said working point, dependent on the phy mode, is set by equalizing the decision distances of the several phy modes.
- 5) The system of one of the previous claims characterized by the fact that it includes means for power control and means for phy mode control, working jointly or separately.
- 6) The system of claim 5 where said means, working jointly, are organized in order to control the transmission power so that the received mean power is not lower than the working point of the current phy mode used for the transmission by the terminal, and they are also organized in order to switch to a more robust and less efficient phy mode, in the case that, in spite of the control, the received mean power goes lower than a predefined threshold, also called 'switching level from said current phy mode to said more robust phy mode'.
- 7) The system of claim 6 where the switching thresholds from the first phy mode to the other phy mode, and vice versa from said other phy mode to the first

one, are different from each other and are chosen in order to generate a hysteresis.

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- 8) The system of claims 6 and 7 where said means, working jointly, are also organized in order to control the power of transmission so that the received mean power is kept close to the working point of the used phy mode.
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- 9) The system of claims 6, 7 and 8 where said means, working jointly, are also organized in order to activate a phy mode switching to a less robust and more efficient one, in the case the received mean power level goes above a predefined level, also called 'switching level from said current phy mode to said less robust phy mode'.
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- 10) The system of claims 6, 7, and 8 where said means, working jointly, are also organized in order to activate a phy mode switching to a less robust and more efficient phy mode, in the case the master station has the information that the peripheral station has sufficient available power in order to guarantee the transmission using said less robust phy mode with such a power level that allows the master station to receive the transmitted signal above the working point of said less robust phy mode.
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- 11) The system of claims from 6 to 10 where said switching levels overlap the working points of the phy modes toward which the switching applies.